REMARKS

Claims 1-25 are pending. Applicant appreciates the Examiner's allowance of Claims 17-25.

Claims 1-16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the R. Billsdon et al. article, "Wiring Harness Design Can a Computer Help?" in view of Nishikawa et al. U.S. Patent No. 5,610,454. This rejection is respectfully traversed.

The Office Action acknowledges (at page 5, para. 1) that Billsdon et al. "does not explicitly disclose the ability [to] associate element data with multiple modules used together as assigned to only one part of the module but having its data associated with each of the multiple modules." Nor in fact do Billsdon et al. implicitly provide such a disclosure, or suggest the desirability of such a system.

Rather, Billsdon et al. describe a computer-aided wiring harness design system which is used for designing a harness in the first instance, without regard to how to deal with necessary variations on a basic (composite or parent) design arising by virtue of specification of different option combinations and the like. The Billsdon et al. article is devoid of any teaching or suggestion of the recited system for creating data relating to a modular wiring harness design, wherein: each harness element is assigned to be part of at least one module; data representing at least some of the elements is associated with a plurality of modules; and an element which has data associated with a plurality of modules that may be used together is assigned to be part of only one of that plurality of modules but has data associated with each of that plurality of modules.

Addressing the above deficiency of Billsdon et al., the Office Action further alleges (at page 5, para. 2) that "Nishikawa teaches a system with the ability to associate harness element data with multiple modules that are used together and are assigned to only one part of the module, (i.e., as common, dedicated, or selectable) but have data associated with each of the multiple modules." The Office Action then asserts that it would have been obvious "to modify the teachings of Billsdon relating to creating/storing data for wiring harness design with module data representing wire component element requirements, with the teachings of Nishikawa relating to associating harness element data with multiple modules that are used together, to realize the claimed invention." Contrary to the Office Action, however, and as explained below,

a combination of Nishikawa et al. with Billsdon et al. would not result in the inventions of claims 1-16.

The Nishikawa et al. patent deals with the manufacture or assembly of a wire harness on the basis of (1) a common circuit and (2) dedicated circuits. Nishikawa et al. do not deal with the engineering design issue, which arises before the assembly stage, of how to assign elements (e.g., components and wires) to modules, and in particular how to make such assignments when such elements do not fit neatly within a single feature category that may be defined as a module, but rather apply to plural feature categories. Nishikawa et al. presume the existence of predefined circuits with mutually exclusive elements, and the ability of those circuits to interconnect with each other, so the problem addressed by the present invention--how to deal with components associated with more than one module--does not arise.

Rather than teaching a system with the ability to associate harness element data with multiple modules that are used together and assigned to only one part of a module, Nishikawa et al. focus on a manufacturing methodology for wiring harnesses, which is something that many wiring manufacturers use. Typically, when a wiring manufacturer receives orders for a number of full assemblies, all of the pieces of the harnesses are manufactured separately and brought together to create the final assemblies, enabling volume efficiencies, etc. for the common components.

Nishikawa et al. describe production efficiencies that may be obtained by a division of harness elements into a common circuit and dedicated circuits (e.g., the 16 types of harnesses (A-P) formed by combinations of the common circuit with four dedicated electrical system circuits, as described in columns 6-9 of Nishikawa et al.). Nishikawa et al. do not describe a methodology for defining those sub-circuits, or for dealing with the issue that arises when one or more of the elements are associated with more than one of the sub-circuits. Nishikawa et al. do not disclose a data management system for managing the breakdown of a basic (e.g., full parent) harness into its associated modules, enabling the resolution of what to do with/how to cost shared connectors, etc. The claimed invention provides such a system.

Nishikawa et al.'s process does not provide a design engineering system for building up constituent modules, particularly one that does so in a manner, as claimed, which deals with the situation of certain elements being associated with a plurality of modules. To do this, the

invention of claim 1 (and of claims 2-15 depending therefrom) creates and stores module data representing elements associated with a plurality of modules. Such elements are assigned to be part of only one of a plurality of modules, but are provided with data associated with each of the plurality of modules to which it pertains. In this manner, the interrelationships of the defined modules can be understood (by virtue of the association of the data representing at least some of the elements with a plurality of modules) while the modules are appropriately configured to have the element in question included in only one of the modules. This permits proper module interconnectivity, and appropriate costing, etc., based on inclusion of the element in only one of the modules.

As described above, neither the Billsdon et al. article nor the Nishikawa et al. patent discloses or suggests the inventions of claims 1-16, nor do they even address the problem which is addressed by the claimed inventions. Accordingly, any combination of these references likewise would fail to teach or suggest the claimed inventions. Reconsideration and withdrawal of the rejections are thus respectfully requested.

For all of the foregoing reasons, it is respectfully submitted that this application is now in condition for allowance. If the Examiner believes that anything further is desirable in order to place the application in even better form for allowance, he is respectfully urged to telephone applicant's undersigned representative at the below-listed telephone number.

Respectfully submitted,

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